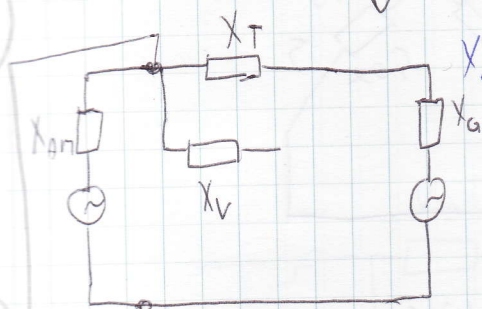


d)



$$X_0 = X_1 = X_T = d = \frac{8}{100} \cdot \frac{35}{20} \cdot K_{ELECTRONE} = 5,23 \Omega$$

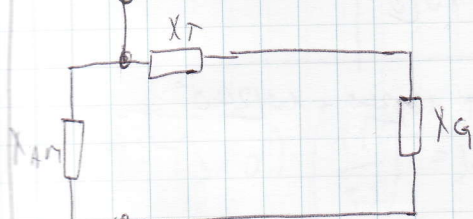
$$X_{G1}'' = 0,13 \cdot \frac{35}{20} = K_{EL} = 0,5$$

$$X_{G1} = 0,5 ; X_0 = 5$$

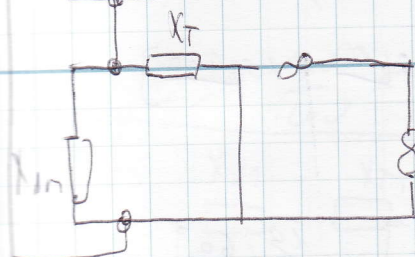
$$X_{AM}'' = X_{IAM} = \frac{1,1 \cdot 35^2}{300} = 4,5$$

$$V_{OAM} = 1,1 \cdot 35^2 \cdot \left(\frac{3}{180} - \frac{2}{300} \right) = 13,47$$

e)



f)



$$I_{K1} = \frac{\sqrt{3} \cdot U_b}{|X_0 + X_1 + X_2|}$$

Nedjelja
15

$$V_0 = X_{AM} \parallel X_T + X_G = 4,5 \parallel 13,73 = 3,38$$

$$X_1 = X_{AM} \parallel X_T + X_G = 4,5 \parallel 13,73 = 3,38$$

$$X_0 = X_{AM} \parallel X_T = 13,47 \parallel 5,23 = 3,76$$

$$I_{K1}'' = \frac{\sqrt{3} \cdot 1,1 \cdot 35}{3,38 + 3,38 + 3,76} = 6,3 \text{ kA}$$

$$I_T = I_{K1}'' \cdot \sqrt{n+n} = 7,07 \text{ kA}$$

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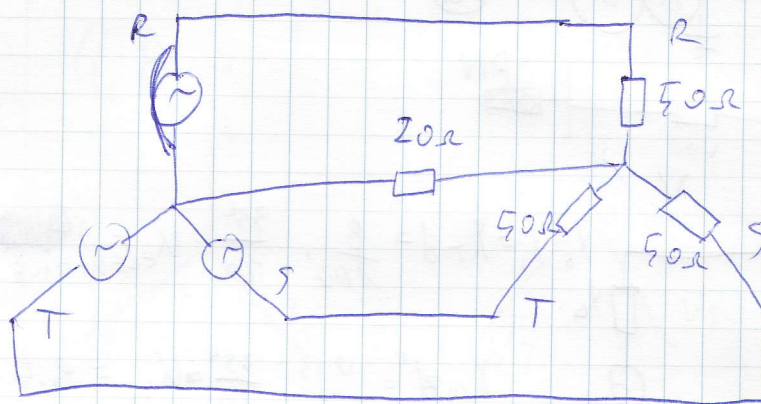
15.00

16.00

17.00

18.00

13



$$V_R = 0 \quad V_S = 10 \angle 120^\circ \quad V_T = 10 \angle 0^\circ$$

$$V_d = \frac{1}{3} [V_R + \alpha V_S + \alpha^2 V_T] = \frac{1}{3} [0 + 10 \angle 240^\circ + 10 \angle 240^\circ] \\ = \frac{20}{3} \angle 240^\circ$$

$$V_i = \frac{1}{3} [V_R + \alpha^2 V_S + \alpha V_T] = \frac{1}{3} [0 + 10 \angle 0^\circ + 10 \angle 120^\circ] \\ V_i = \frac{1}{3} [5 + j10\frac{\sqrt{3}}{2}] = \frac{10}{3} \angle 60^\circ$$

$$V_o = \frac{1}{3} [V_R + V_S + V_T] = \frac{1}{3} [5 + j0] = \frac{10}{3} \angle 60^\circ$$

$$I_d = \frac{V_d}{50} = 133 \angle 240^\circ$$

$$I_i = \frac{V_i}{50} = 66 \angle 60^\circ$$

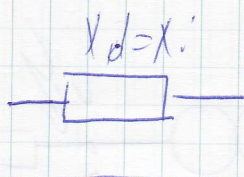
$$I_o = \frac{V_o}{50 + 3 \cdot 20} = 30.27 \angle 60^\circ$$

$$I_R = -18.36 + j(-31.0) = 36.7 \angle 240^\circ$$

$$I_T = 0 \angle 0^\circ = 184 \angle 130^\circ$$

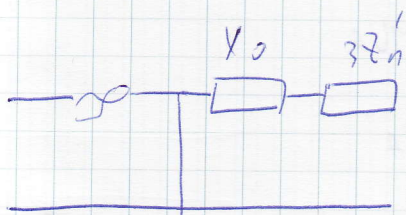
$$I_S = 0 \angle 0^\circ = 184 \angle -120^\circ$$

$$d_i =$$



$$X_d = X_i = 0.08 \cdot \frac{110^2}{40} = j24.2 \Omega$$

⑥



$$3Z_n = 3 \cdot (j10) \cdot \left(\frac{110}{35}\right)^2 = j296.3$$

$$X_0 = 0.24 \cdot \frac{110^2}{40} = j72.6$$

h k

$$U_b = 20 \text{ kV}$$

$$A.M) X_d'' = \frac{1.1 \cdot 20^2}{2500} = j0.176 \Omega$$

$$X_0 = X_i = 1.1 \cdot 20^2 \left(\frac{3}{1500} - \frac{2}{2500} \right) = j0.53$$

$$G) X_d'' = 15\% \quad X_d = 15\% \quad X_0 = 8\%$$

$$X_d'' = X_i = 0.15 \cdot \frac{20^2}{40} = j1.5 \Omega$$

$$X_0 = j0.8 \Omega$$

$$V001) \quad X = 0.4 \Omega / \text{km} \cdot 50 \Omega$$

$$X_{\text{tot}} = 20 \cdot \left(\frac{20^2}{110} \right) \approx 0.6 \Omega$$

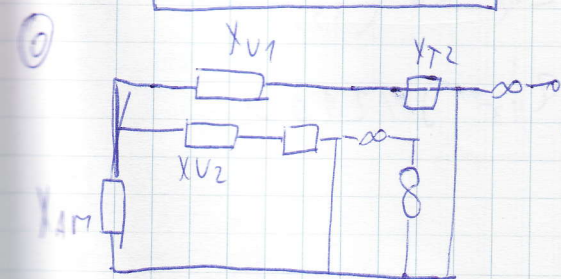
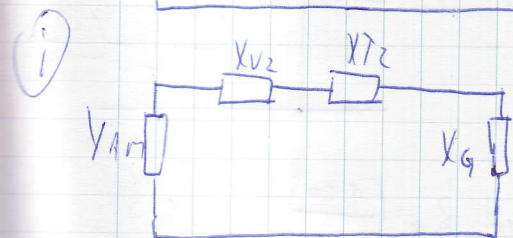
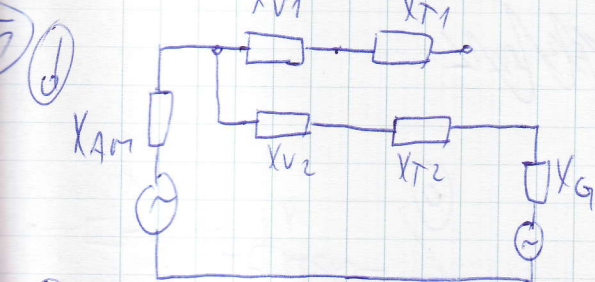
$$X_0 = 3X_d = 1.98 \Omega$$

$$V002 \quad X = 0.14 \cdot 35 = 1.4 \Omega$$

$$X_d = X_i = 0.48 \quad X_0 = 1.38 \Omega$$

$$X_i = X_d = 0.08 \cdot \frac{20^2}{20} = 1.6 \Omega$$

$$X_0 = 2X_d = 2 \cdot 1.6 = 3.2 \Omega$$



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16.00

17.00

18.00

(16)



$$S_{kn} = 300 \text{ MVA}$$

$$I_{k1} \text{ u točki B} = 0$$

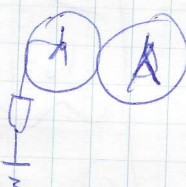
$$S = I_{k1} \cdot U_n \cdot \sqrt{3} = 600 \text{ MVA}$$

$$U_A = 35 \text{ kV} \quad S = 300 \text{ MVA}$$

$$I_{k1} = 4.59 \text{ kA}$$

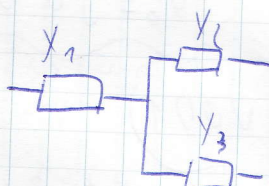
$$I_{k1} = \frac{\sqrt{3} C U_n}{Z_{un}} =$$

$$Z_{un} = \frac{1}{3} \frac{\sqrt{3} C U_n}{I_{k1}} = 4.44$$



$$Z_{un} = \frac{35 \text{ kV}}{4.59 \text{ kA}} = 7.62 \Omega$$

(17)



$$U_{n2} = 0.11 \cdot \frac{110^2}{60} = 22.18$$

$$U_{n13} = 0.12 \cdot \frac{110^2}{20} = 72.6$$

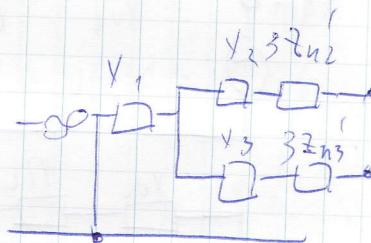
$$U_{n23} = 0.13 \cdot \frac{110^2}{20} = 78.6$$

$$U_{n1} = \frac{1}{2} (U_{n2} + U_{n3} - U_{n23}) = 8.09$$

$$X_2 = \frac{1}{2} (U_{n2} + U_{n3} - U_{n23}) = 14.09$$

$$U_3 = 64.53$$

(18)



$$Z'_{n2} = Z_n \cdot \left(\frac{110^2}{35} \right) = j 98.7 \Omega$$

$$Z'_{n3} = j 1210 \Omega$$

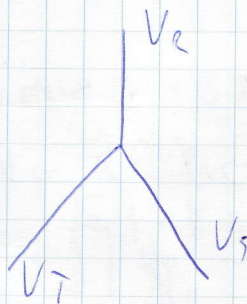
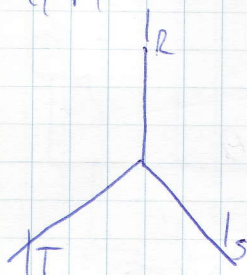
7.00

(10)

$$V_S = 10 \angle 240^\circ \text{ V} \quad I_T = 150 \angle 180^\circ \text{ A}$$

8.00

$$Q, P, S = ?$$



$$V_R = 10 \angle 0^\circ$$

$$V_S = 10 \angle 240^\circ$$

$$V_T = 10 \angle 120^\circ$$

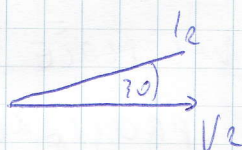
INVERZNO

$$I_R = 150 \angle 30^\circ$$

$$I_S = 150 \angle 270^\circ$$

$$I_T = 150 \angle 150^\circ$$

11.00



STRUJA PRETHODI
NAPONU - C

12.00

$$S = U \cdot I = 1.5 \text{ MVA} \cdot 3 = 4.5 \text{ MVA}$$

$$P = U \cdot I \cdot \cos \varphi = 4.5 \cdot \cos 30 = 3.89 \text{ MVA}$$

$$Q_L = \sqrt{P^2 - S^2} = 2.25 \text{ MVA}$$

13.00

(11)

$$I_R = 100 \angle 0^\circ$$

$$I_S = 100 \angle 270^\circ$$

$$I_T = 100 \angle 180^\circ$$

14.00

$$I_d = \frac{1}{3} (I_R + a I_S + a^2 I_T)$$

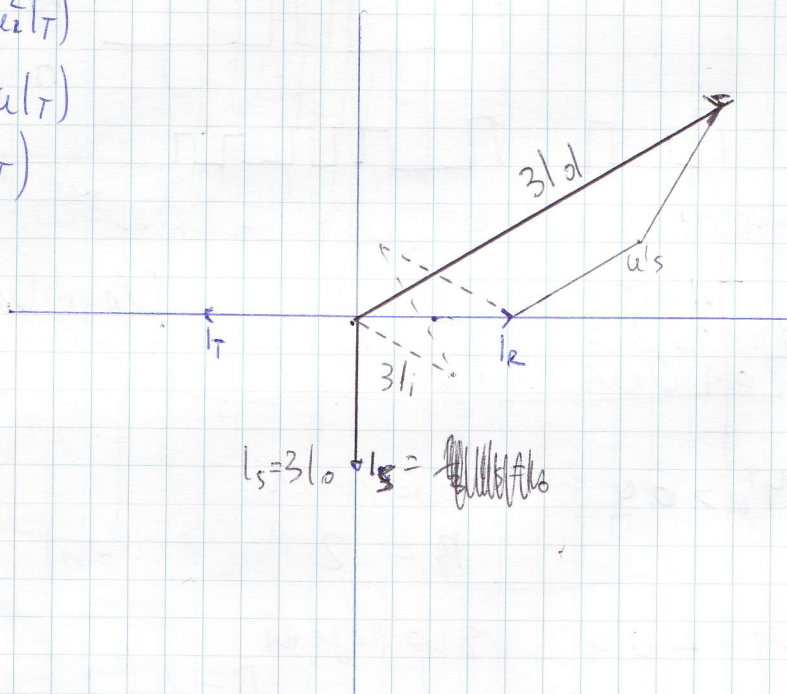
$$I_1 = \frac{1}{3} (I_R + a^2 I_S + a I_T)$$

15.00

$$I_0 = \frac{1}{3} (I_R + I_S + I_T)$$

$$I_0 = \frac{1}{3} I_S$$

16.00



17.00

18.00